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ABSTRACT

Regression analysis was employed to determine if there were any similarities between the tests administered to participants of the Mountain-Plains program, a residential, family-based education program developed to improve the economic potential and lifestyle of selected student families in a six-state area. The study compared the Wide Range Achievement Test (WRAT) which was used in the selection process to the Comprehensive Test of Basic Skills (CTBS) which was administered after the students arrived at Mountain-Plains in order to measure their educational level in various areas. The results of the study concluded that there was a great deal of similarity between the two measures and that the effectiveness of the WRAT for selection purposes was reinforced. (Author/BM)

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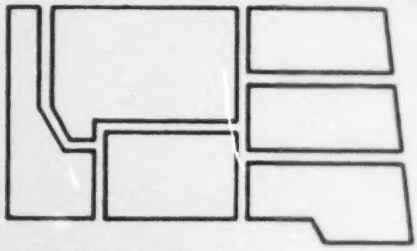

A REGIONAL PROGRAM IN
COMPREHENSIVE FAMILY EDUCATION

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A COMPARISON OF GRADE LEVEL SCORES ON THE WIDE RANGE ACHIEVEMENT TEST (WRAT) AND THE COMPREHENSIVE TEST OF BASIC SKILLS (CTBS)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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MOUNTAIN-PLAINS EDUCATION ECONOMIC DEVELOPMENT PROGRAM INC.

A COMPARISON OF GRADE LEVEL SCORES ON THE WIDE RANGE ACHIEVEMENT TEST (WRAT) AND THE COMPREHENSIVE TEST OF BASIC SKILLS (CTBS)

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ABSTRACT

Mountain-Plains uses as a selection process the Wide Range Achievement Test (WRAT) to determine if the applicants can negotiate the curriculum used in the program. Once a student family has been accepted into the program and has arrived at the Glasgow center, they are again tested in an effort to measure their educational level in a number of areas. The present research compares the WRAT and the Comprehensive Test of Basic Skills (CTBS). The WRAT measures reading and mathematical abilities which are also comprehensively measured by the CTBS.

Regression analysis was employed to determine if there were similarities between the two measures. The report concludes that there is in fact a great deal of similarity between the two measures, and the effectiveness of the WRAT for purposes of selection was reinforced.

A COMPARISON OF GRADE LEVEL SCORES ON THE WIDE RANGE ACHIEVEMENT TEST (WRAT) AND THE COMPREHENSIVE TEST OF BASIC SKILLS (CTBS)

INTRODUCTION

One of the student selection devices used by the Mountain-Plains Program to determine if a family can negotiate the curriculum is the Wide Range Achievement Test (Jastak & Jastak, 1965). The WRAT is used because of the ease with which it can be administered and scored and because of its general reliability as a test. The WRAT is used as a general indicator of educational levels. Once a family is admitted to the program and has moved to the Glasgow center, they are administered a battery of tests including the Comprehensive Test of Basic Skills (CTB/McGraw Hill, 1968) which provides, as its name would imply, a more comprehensive assessment of the individuals ability to perform at various educational levels. Two areas assessed by the CTBS, and the WRAT, are reading and math. The purpose of this research is to determine if the WRAT and CTBS are comparable measures of these two areas.

METHODOLOGY

A total of 145 students, on which there were both WRAT and CTBS scores, were examined using linear regression analysis to determine if a strong relationship does exist between the two tests. A T test analysis of related samples was also used to assess the significance between the two measures for the field of math and reading. The students were also grouped by state of origin in an effort to ascertain if one state is enrolling students who deviate significantly from the total group mean.

The sample size for each state equalled: Idaho with 24, Montana with 35, Nebraska with 19, North Dakota with 14, South Dakota with 28, and Wyoming with 25 individuals.

RESULTS

Regression analysis of reading levels as displayed in Table I indicates that all states proved to have significant correlation coefficients. A one tailed critical correlation value used as a positive relationship was expected to be found between the two measures. The R squared values were equally impressive with over 50% of the common variance being accounted for by the WRAT as the mode; the level of predictability is exceptionally high.

Table I
WRAT Reading → CTBS Reading

	R	R^2	Slope	Y Intercept	N
Idaho	.695*	.483	.605	2.598	24
Montana	.715*	.511	.430	5.331	35
Nebraska	.759*	.576	.699	1.409	19
N. Dakota	.711*	.506	.457	5.237	14
S. Dakota	.584*	.341	.454	4.337	28
Wyoming	.799*	.638	.512	4.181	25

*All R values significant beyond . 05 probability level.

The relatively flat slope is expected due to the variations experienced within the WRAT. The intercept also corresponds with the slope in the variation experienced between the states individual means. The states with a relatively "flat" regression line have a high Y intercept as the gain in the value of X does not increase the value of Y proportionally. The lack of significance between individual state means and the grand mean discussed later in this report, has direct importance when considered with the regression findings. Generally, each state begins at a different point but ends up at the same place.

Table II
WRAT Math → CTBS Math

	R	R^2	Slope	Y Intercept	N
Idaho	.730*	.533	.617	3.147	24
Montana	.781*	.610	.645	3.972	35
Nebraska	.870*	.757	.881	2.317	19
N. Dakota	.743*	.552	.504	4.526	14
S. Dakota	.817*	.667	.802	2.734	28
Wyoming	.696*	.484	.668	4.355	25

*All R values significant beyond . 05 probability level.

Table II examines the relationship between the two math grade levels. The correlation coefficients were again all significant and the R^2's were equally impressive. The relationship of WRAT with CTBS was expected, the degree of the two varying, or lack of variation, is also of importance as indicated by Table III.

Table III
T = WRAT Reading → CTBS Reading

	N	$\bar{X}$	SD	$\bar{X}$	SD	T	p
Idaho	24	10.9130	3.0550	9.2625	2.6340	+1.42	>.10
Montana	35	12.3457	3.2759	10.6429	1.9708	+ .88	>.20
Nebraska	19	11.2053	3.7408	9.2368	3.4437	+1.65	>.10
N. Dakota	14	11.2857	2.7983	10.4000	1.8013	+1.23	>.20
S. Dakota	28	12.2500	2.6049	9.9036	2.0269	+2.70	>.01
Wyoming	25	13.4560	3.3576	11.0680	2.1496	+2.17	>.02
Total	145	12.0297	3.1588	10.1373	2.3528	4.135	>.001
		WRAT Math			CTBS Math		
Idaho	24	7.5417	2.369	7.8000	2.0059	- .29	>.20
Montana	35	8.3971	2.2841	9.3857	1.8865	-1.39	>.10
Nebraska	19	6.9789	2.3377	8.4684	2.3732	-1.38	>.10
N. Dakota	14	7.8571	2.6100	8.4857	1.7706	- .54	>.20
S. Dakota	28	6.8714	2.0002	8.2464	1.9635	-1.83	>.05
Wyoming	25	7.7680	2.5607	9.5480	2.4578	-1.78	>.05
Total	145	7.6145	2.3364	8.7241	2.0858	-3.021	>.001

Table III displays the results of a T test being applied to determine if a significant difference does exist between the two measures. The reading and math means were both significantly different on the total group. Examination of individual states proved to be considerably different as only two states had mean differences that were significant beyond the .05 probability level on the reading tests, and none of the means were significant on the math tests. The total results reflect the additive nature of the between state variation. The examination of state to total means was conducted to determine if one state caused the significant differences for the total group.

Table IV
WRAT Reading
T = State to Total

	$\bar{X}$	SD	N	T	P
Idaho	10.9130	3.0550	24	-1.27	>.20
Montana	12.3457	3.2759	35	.39	>.20
Nebraska	11.2053	3.7408	19	- .74	>.20
N. Dakota	11.2857	2.7983	14	- .74	>.20
S. Dakota	12.2500	2.6049	28	.75	>.20
Wyoming	13.4560	3.3576	25	.93	>.20
Total	12.0297	3.1588	145	--	--

CTBS Reading
T = State to Total

	$\bar{X}$	SD	N	T	P
Idaho	9.2625	2.6340	24	-1.18	>.20
Montana	10.6429	1.9708	35	.95	>.20
Nebraska	9.2368	3.4437	19	- .91	>.20
N. Dakota	10.4000	1.8013	14	.39	>.20
S. Dakota	9.90357	2.0269	28	- .40	>.20
Wyoming	11.0680	2.1496	25	1.48	>.10
Total	10.1373	2.3523	145	--	--

Table V
WRAT Math
T = State to Total

	$\bar{X}$	SD	N	T	P
Idaho	7.5417	2.3692	24	- .11	>.20
Montana	8.3971	2.2841	35	1.35	>.10
Nebraska	6.9789	2.3377	19	- .87	>.20
N. Dakota	7.8571	2.6100	14	.27	>.20
S. Dakota	6.8714	2.0002	28	- .13	>.20
Wyoming	7.7680	2.5607	25	.22	>.20
Total	7.61447	2.3364	145	--	--

CTBS Math
T = State to Total

	$\bar{X}$	SD	N	T	P
Idaho	7.8000	2.0059	24	-1.59	>.10
Montana	9.3857	1.8865	35	1.35	>.20
Nebraska	8.4684	2.3732	19	- .36	>.20
N. Dakota	8.4857	1.7706	14	- .37	>.20
S. Dakota	8.2464	1.9635	28	- .88	>.20
Wyoming	9.5480	2.4578	25	1.25	>.20
Total	8.7241	2.0858	145	--	--

The examination of individual state mean grade levels and the overall program mean grade levels provided no significant differences for any one state; generally, the T values were quite small on both reading and math measures.

DISCUSSION

The significant differences found on both the math and reading scores for the total population was informative. The lack of universal significance for the state mean levels was unexpected. One explanation for the lack of significance may be the N size for each respective state and its resulting degrees of freedom, which vary greatly between the state and the total. The high correlations between the tests helped to validate the respective tests, in particular the WRAT, as a useful tool to be used by state office staff in their selection process. Although there were significant differences between the two measures, the high correlations make it possible to adjust the score accordingly on the WRAT to those that would be expected on the CTBS. Generally the high WRAT score provides a correspondingly high CTBS score. A point that needs to be mentioned that may provide some explanation as to why there were large differences found between the two tests is their construction. The two tests may measure different aspects of reading or mathematical computation, although the high correlations would not support this theory.

FORMATIVE IMPLICATION

The results of this analysis support the use of the Wide Range Achievement Test as a tool for selection of potential student families. The state office staff should remember that individuals score higher on the CTBS math test and lower on the CTBS reading test than they do on the respective WRAT tests. The state offices should also examine their respective score changes from WRAT to CTBS to better understand how great a shift may be expected.

REFERENCES CITED

CTB/McGraw Hill, Del Monte Research Park, Monterey, CA, 1968.

Jastak, J.F. & Jastak, S.R. Guidance Associates, 1526 Gilpin Avenue, Wilmington, DE, 1965.